

REMARKS

Claims 1, 3, 4 and 6-15 are pending in this application. Claim 1 and 15 are independent claims.

By this amendment, claim 1 is amended, and new claim 15 is added.

Reconsideration in view of the above amendments and following remarks is respectfully solicited.

The Claims Define Patentable Subject Matter

The Final Office Action maintains the following rejection:

(1) claims 1, 3, 4 and 6-14 are rejected under 35 U.S.C. §103(a) as being unpatentable under U.S. Patent No. 6,556,243 to Dotsubo et al. (hereafter Dotsubo) in view of U.S. Patent No. 6,157,749 to Miyake (hereafter Miyake).

This rejection is respectfully traversed.

Applicants respectfully submit that the combination of Dotsubo and Miyake fail to teach or suggest each and every feature as set forth in the claimed invention.

Specifically, claim 1 recites, *inter alia*, that during the operation process the original pixel to be processed and the adjacent (N-1) original pixels thereof are each multiplied by a predetermined coefficient and summed up, wherein the N is a natural number more than "3". Furthermore, a brightness level of each pixel of the information image is calculated in the low-pass-filter process, wherein the brightness level after the low-pass-filter process is obtained from the following formula:

$$D = k1 \cdot d(i) + k2 \cdot d(i+1) + k3 \cdot d(i+2) + k4 \cdot d(i-1) + k5 \cdot d(i-2),$$

wherein k_1 to k_5 are "0.2" and the brightness level of a target pixel is represented by $d(i)$ and the brightness levels of the adjacent (N-1) pixels are respectively represented by at least $d(i+1)$, $d(i+2)$, $d(i-1)$ and $d(i-2)$, wherein the original pixel to be process and the adjacent (N-1) original pixels thereof represent a tap number, wherein said original image includes a plurality of elements, said elements being separated at least by an amount corresponding to said tap number after producing said original image.

Applicants respectfully submit that in the present invention, a target pixel is set in a certain line of the original image. Regarding the target pixel and the adjacent pixels thereof, a brightness level of each pixel is multiplied by a prescribed coefficient. Incidentally, the adjacent pixels of the target pixel are set at horizontal both sides thereof, and a number of which is predetermined. The multiplied brightness levels are summed up to obtain a total value which is regarded as the new brightness level of the target pixel. By the way, the number of the pixels including the target pixel and used for obtaining the brightness level of one pixel is defined as a tap number. This tap number used in the low-pass-filter process is greater than a maximum thinning number used in the thinning process. In the present invention, the original image includes a plurality of elements, the elements being separated at least by an amount corresponding to the tap number after producing said original image.

In the present invention, upon executing the low-pass-filter process, the number of the pixels for constructing the letter is increased in the horizontal direction by an amount corresponding to

the tap number. When the low-pass-filter process is executed at a burst in a state that the adjacent letters of the original image are closely arranged, the brightness levels of the respective pixels of the adjacent letters are likely to affect each other. Sometimes the pixel having the comparatively high brightness level is unexpectedly generated. In order to prevent this, intervals of the letters of the original image are determined such that the letters are separated at least by an amount corresponding to the tap number.

Applicants respectfully submit that both Dotsubo and Miyake's alleged low-pass filtering process fails to teach or suggest an operation process having a plurality of elements whereby the elements are separated at least by an amount corresponding to the tap number, after producing the original image.

The Examiner further alleges that the use of five coefficients (k_1 - k_5) of equal value (0.2) being multiplied by each pixel is mathematically equivalent to an averaging function. (see Final Office Action, page 3). Applicants' respectfully disagree with this allegation.

Applicants respectfully point out that when more than five pixels are being used with the coefficient 0.2, the Examiner's "averaging theory" is erroneous. In the present invention, at least five coefficients and pixels are being used. However, in the present invention, the number of pixels, and corresponding coefficients, can be broadened in the horizontal direction by at least pixels on both sides thereof and still satisfy the brightness formula. Under such circumstances, the low-pass filtering process

in the present invention clearly fails to be an averaging process as taught by Miyake.

Furthermore, Miyake fails to disclose having the original pixel and the adjacent (N-1) original pixels each multiplied by a predetermined coefficient, where N is more than 3. Miyake is completely silent about using a predetermined coefficient for each pixel. Instead, Miyake merely broadly refers to a product-sum operation wherein the "average value" of nine pixels is calculated. But, nowhere in Miyake is there any mention of a specific predetermined value for a coefficient.

Applicants respectfully submit that not only does the cited references fail to teach or suggest each and every feature as set forth in the claimed invention, but that one of ordinary skill in the art would not have been motivated to modify/combine the teachings of Dotsubo with Miyake to arrive at the claimed invention because there is no teaching or suggestion in Dotsubo or Miyake regarding how or why one would modify such a method to arrive at the claimed invention.

As such, applicants respectfully submit that Miyake fails to make up for the deficiencies found in Dotsubo.

Applicants respectfully submit that neither Dotsubo nor Miyake, taken singularly or in combination, (assuming these teachings may be combined, which applicant do not admit) teach or suggest the low-pass-filter process as claimed.

To establish a *prima facie* case of Obviousness, three basic criteria must be met. First, there must be some suggestion or

motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP 706.02(j).

Applicants respectfully submit that the combination of Dotsubo with Miyake fails to teach or suggest each and every feature as set forth in the claimed invention.

Applicants respectfully submit that independent claims 1 and 15 are allowable over the combination of Dotsubo and Miyake for at least the reasons noted above.

As for each of the dependent claims not particularly discussed above, these claims are also allowable for at least the reasons set forth above regarding their corresponding independent claims, and/or for the further features claimed therein.

Accordingly, withdrawal of the rejection of claims 1, 3, 4 and 6-14 under 35 U.S.C. §103(a) is respectfully requested.

Conclusion

In view of the foregoing, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Carolyn T.

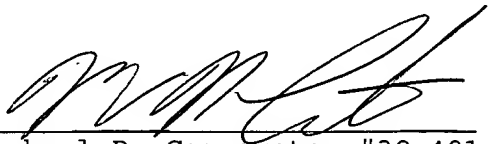
Baumgardner (Reg. No. 41,345) at (703) 205-8000 to schedule a Personal Interview.


If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment from or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §1.16 or under 37 C.F.R. §1.17; particularly, the extension of time fees.

Respectfully submitted,
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By


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